

REMARKS

Applicants have amended Claim 8 to limit the base to inorganic aqueous bases and pyridine or pyridine derivatives. Support for the amendment can be found in the specification, for example, at page 4, lines 7-18. Applicants have canceled Claims 11-13.

Restriction Requirement under 35 U.S.C. 121{PRIVATE }

The Office Action summarizes a restriction requirement made by telephone January 5, 2007, relating to the following groups:

- Group I: Claims 8-9, drawn to a process for preparing 2-dihaloacyl-3-aminoacrylic esters
- Group II: Claim 10, drawn to 2-dihaloacyl-3-aminoacrylic esters
- Group III: Claims 11-12, drawn to a process for preparing 3-dihalomethyl-pyrazole-4-carboxylic esters
- Group IV: Claim 13, drawn to 3-dihalomethylpyrazole-4-carboxylic esters

Election of a single disclosed species from the elected group for the purpose of initial examination was also required.

Applicants acknowledge election with traverse of Group I with respect to Group II but without traverse with respect to Groups III and IV. Applicants also acknowledge election of the species represented by embodiments in which the base is 2-methyl-5-ethylpyridine. This species election is without traverse to the extent that it is understood that (a) the restriction requirement will be withdrawn upon the finding of an allowable genus and (b) any species withdrawn from consideration will be transferred to the elected subject matter unless it is found patentably distinct from the elected or allowed claims.

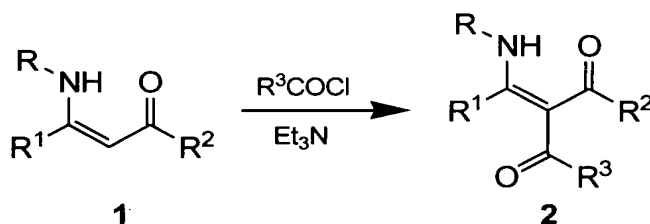
Applicants base their traversal with respect to Group II on the fact that the process of Group I is specifically limited to the preparation of the compounds of Group II and respectfully request rejoinder of Groups I and II.

For reasons discussed below, Applicants also request rejoinder with respect to the scope of the bases used in their claimed process.

Rejection under 35 U.S.C. 103

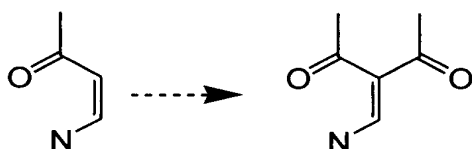
Claims 8-9 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the cited Angelov article (in *Synthesis* 14, 2221-2225 (2003)) in view of U.S. Patent 6,388,124 ("Takahashi et al"). Applicants respectfully traverse.

Angelov discloses acylation of enaminones having the formula **1** to form compounds of formula **2** as shown in the following reaction scheme taken from page 2222 of the reference:



in which the various groups can apparently have various meanings but are defined in a very limited manner to include embodiments in which R is one of a few specific lower alkyl or optionally ring-substituted benzyl or phenethyl; R¹ is methyl or phenyl; R² is methyl, ethoxy, amino, anilino, or diethylamino; R³ is methyl, CCl₃, or optionally substituted phenyl. Angelov teaches that the reaction is always carried out in the presence of triethylamine. See page 2221 near top of right column. It may further be noted that the reference does not disclose compounds in which R³ could be any halogenated group other than trichloromethyl. Angelov does not teach that a dichloromethyl compound – such as specified by Applicants – could successfully withstand the reaction conditions taught by the reference.

The Office Action relies on Takahashi et al to teach the equivalence of triethylamine and other nitrogenous bases not disclosed in Angelov. Applicants submit that the reliance on Takahashi et al is misplaced. Takahashi et al discloses a completely different reaction of completely different reactants than what is claimed by Applicants. Takahashi et al teaches the halogenation of alcohol reactants to form corresponding halogen-substituted compounds by conversion of C-OH groups to C-Cl groups using a halogenating agent. See column 1, lines 41-67. In contrast, Applicants' claimed process is directed to acylation of dialkylaminoacrylic esters by conversion of an enaminone moiety to a diacyl moiety as represented below



That is, Takahashi et al discloses a halogenation reaction completely unrelated to the acylation reactions of both Angelov and Applicants' claimed invention. Even if Takahashi et al is read as teaching the equivalence of triethylamine and pyridine

derivatives in halogenation reactions, those skilled in the art would not be led by this reference to the conclusion that triethylamine is equivalent to pyridine (or derivatives thereof) in any reaction other than halogenation of an alcohol. Applicants submit that Takahashi et al is completely irrelevant to their claimed acylation process.

Applicants' specification points out at page 3, lines 6-11, the unexpected advantages of using pyridine or pyridine derivatives instead of tertiary amines such as triethylamine. Experimental data provided in the examples show that 2-methyl-5-ethylpyridine and other pyridines provide superior results compared to triethylamine. The inferiority of triethylamine is illustrated in Applicants' Comparative Example 2 (specification at page 16), which shows that the reaction of dichloroacetyl chloride with ethyl dimethylaminoacrylate in the presence of triethylamine produces a dark oil containing 47.8% ethyl 2-(dichloroacetyl)-3-(dimethylamino)acrylate product in a yield of 44.6%. In contrast, Applicants' Example 14 of the invention (specification at page 15) shows that the use of 2-methyl-5-ethylpyridine (identified in the example as 5-ethyl-2-methylpyridine) under otherwise similar conditions produces a significantly higher 92.1% yield of the desired product. Similarly impressive yields were found for 2-methylpyridine, as shown in Examples 9 (91.3% yield) and 10 (95% purity, 82.3% yield). These data clearly show that the teachings of Angelov, whether taken alone or with Takahashi et al, would not lead those skilled in the art to the unexpected advantages of using pyridine or its derivatives in place of triethylamine.

In view of these data, Applicants respectfully submit that the elected species represented by embodiments in which the base is 2-methyl-5-ethylpyridine is clearly patentable over the cited references. For this reason, as well as the additional support provided by the data for 2-methylpyridine, Applicants also request rejoinder of all embodiments in which the base can be pyridine or derivatives thereof, including all embodiments of Claim 9.

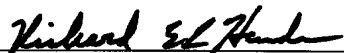
Applicants further request examination and allowance of Claim 8 as now amended to limit the bases not only to pyridine and its derivatives (as discussed above) but also to inorganic aqueous bases. The cited references are silent with respect to inorganic bases. Furthermore, in addition to the experiments discussed above, Applicants' specification provides examples in which similar reactions carried out in the presence of aqueous sodium hydroxide (i.e., Examples 1-3, as well as

Example 12 for a difluoro compound) provided significantly higher yields than the reaction using triethylamine.

Applicants therefore respectfully request that their claims as amended are not rendered obvious by the Angelov article in view of Takahashi et al.

In view of the preceding amendments and remarks, allowance of the claims is respectfully requested.

Respectfully submitted,

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